WHAT IS CLAIMED IS:

1. A method for testing comprising the steps of:

improving a crystallinity by irradiating an energy beam to a semiconductor film;

irradiating a visible light on a surface of the semiconductor film of which the crystallinity is improved and a scattered light is photographed;

digitalizing the photographed image to make a digital image; and

calculating a luminance of the digital image by a computer in a direction perpendicular to the scanning direction of the energy beam over the semiconductor film.

2. A method for testing comprising the steps of:

irradiating a visible light on a surface of a semiconductor film of which crystallinity is improved by irradiating an energy beam;

photographing a scattered light of the irradiated visible light; and

digitalizing the photographed image to make a digital image, wherein

a direction in which the energy beam is scanned is a Y direction and a direction perpendicular to the Y direction is an X direction in the digital image;

sectioning m x n basic units by dividing the digital image into m in the X direction and n in the Y direction in a predetermined analysis region;

calculating a sum of luminance of the m basic units aligned in the X directions per each of the n rows aligned in the Y directions;

obtaining an approximate line of a relation of the sum of the luminance to a corresponding alignment in the Y direction; and

testing a crystallinity of the semiconductor film of which the crystallinity is improved, by the fluctuation of the sum of the luminance from the approximate line.

3. A method for testing comprising the steps of:

irradiating a visible light on a surface of a semiconductor film of which the crystallinity is improved by irradiating an energy beam;

photographing a scattered light of the irradiated visible light; and

digitalizing the photographed image to make a digital image, wherein

a direction in which the energy beam is scanned is a Y direction and a direction perpendicular to the Y direction is an X direction in the digital image;

sectioning m x n basic units by dividing the digital image into m in the X direction and n in the Y direction in a predetermined analysis region;

calculating an average of luminance of the m basic units aligned in the X directions per each of the n rows aligned in the Y direction;

obtaining an approximate line of a relation of the average of the luminance to a corresponding alignment in the Y direction; and

testing the crystallinity of the semiconductor film of which the crystallinity is improved, by the fluctuation of the average of the luminance from the approximate line.

4. A method for testing comprising the steps of:

irradiating a visible light on a surface of a semiconductor film of which the crystallinity is improved by irradiating an energy beam;

photographing a scattered light of the irradiated visible light; and

digitalizing the photographed image to make a digital image, wherein

a direction in which the energy beam is scanned is a Y direction and a direction perpendicular to the Y direction is an X direction in the digital image;

sectioning m x n basic units by dividing the digital image into m in the X direction and n in the Y direction in a predetermined analysis region;

counting a case as one where there are a specified number of basic units in a row in the X directions having larger luminance than two adjacent basic units in the Y direction; and

testing the crystallinity of the semiconductor film of which the crystallinity is improved, by a number of counts in a display.

5. A method for testing comprising the steps of:

irradiating a visible light on a surface of a semiconductor film of which the crystallinity is improved by irradiating an energy beam;

photographing a scattered light of the irradiated visible light; and

digitalizing the photographed image to make a digital image, wherein

a direction in which the energy beam is scanned is a Y direction and a direction perpendicular to the Y direction is an X direction in the digital image;

sectioning m x n basic units by dividing the digital image into m in the X direction and n in the Y direction in a predetermined analysis region;

counting a case as one where there are a specified number of basic units in a row in the X direction having larger luminance than two basic units apart from each other at a certain distance in the Y direction; and

testing the crystallinity of the semiconductor film of which the crystallinity is improved, by a number of counts in a display.

6. The method for testing according to claim 1, wherein a corrected saturation is used instead of the luminance.

7. The method for testing according to claim 2, wherein a corrected saturation is used instead of the luminance.

8. The method for testing according to claim 3, wherein a corrected saturation is used instead of the luminance.

9. The method for testing according to claim 4, wherein a corrected saturation is used instead of the luminance.

10. The method for testing according to claim 5, wherein a corrected saturation is used instead of the luminance.

11. The method for testing according to claim 1, wherein an average luminance in the digital image is tested altogether.

12. The method for testing according to claim 2, wherein an average luminance in the

digital image is tested altogether.

13. The method for testing according to claim 3, wherein an average luminance in the digital image is tested altogether.

14. The method for testing according to claim 4, wherein an average luminance in the digital image is tested altogether.

15. The method for testing according to claim 5, wherein an average luminance in the digital image is tested altogether.

16. The method for testing according to claim 1, wherein an average corrected saturation in the digital image is tested altogether.

17. The method for testing according to claim 2, wherein an average corrected saturation in the digital image is tested altogether.

18. The method for testing according to claim 3, wherein an average corrected saturation in the digital image is tested altogether.

19. The method for testing according to claim 4, wherein an average corrected saturation in the digital image is tested altogether.

20. The method for testing according to claim 5, wherein an average corrected saturation in the digital image is tested altogether.

21. A method for testing wherein two or more of methods for testing claim 1 are combined for testing.

22. A method for testing wherein two or more of methods for testing claim 2 are

combined for testing.

23. A method for testing wherein two or more of methods for testing claim 3 are combined for testing.

24. A method for testing wherein two or more of methods for testing claim 4 are combined for testing.

25. A method for testing wherein two or more of methods for testing claim 5 are combined for testing.

26. A method for testing a beam profile comprising the steps of:

irradiating an energy beam of one pulse on a substrate on which an amorphous semiconductor film is formed;

irradiating a visible light on a surface of the substrate and photographing a scattered light;

digitalizing the photographed image to make a digital image; and

testing a profile of the energy beam by calculating a luminance of the digital image in a direction perpendicular to the scanning direction of the energy beam over the semiconductor film.

27. A method for testing a beam profile comprising the steps of:

irradiating an energy beam of one pulse on a substrate on which an amorphous semiconductor film is formed;

irradiating a visible light on a surface of the substrate and photographing a scattered light; and

digitalizing the photographed image to make a digital image, wherein

a minor axis of the energy beam is a Y direction and a major axis is an X direction in the digital image;

sectioning m x n basic units by dividing the digital image into m in the X direction and

n in the Y direction in a predetermined analysis region;

calculating a sum of luminance of the m basic units aligned in the X directions per each of the n rows aligned in the Y directions; and

testing a profile of the energy beam by a relation of the sum of the luminance to a corresponding alignment in the Y direction.

28. A method for testing a beam profile comprising the steps of:

irradiating an energy beam of one pulse on a substrate on which an amorphous semiconductor film is formed;

irradiating a visible light on a surface of the substrate and photographing a scattered light; and

digitalizing the photographed image to make a digital image, wherein

a minor axis of the energy beam is a Y direction and a major axis is an X direction in the digital image;

sectioning m x n basic units by dividing the digital image into m in the X direction and n in the Y direction in a predetermined analysis region;

calculating an average of luminance of the m basic units aligned in the X directions per each of the n rows aligned in the Y directions; and

testing a profile of the energy beam by a relation of the average of the luminance to a corresponding alignment in the Y direction.

29. The method for testing according to claim 26, wherein a corrected saturation is used instead of the luminance.

30. The method for testing according to claim 27, wherein a corrected saturation is used instead of the luminance.

31. The method for testing according to claim 28, wherein a corrected saturation is used instead of the luminance.

32. The method for testing according to claim 1, wherein the energy beam is a laser light.

33. The method for testing according to claim 2, wherein the energy beam is a laser light.

34. The method for testing according to claim 3, wherein the energy beam is a laser light.

35. The method for testing according to claim 4, wherein the energy beam is a laser light.

36. The method for testing according to claim 5, wherein the energy beam is a laser light.

37. The method for testing according to claim 1, wherein the visible light has such light source as a metal halide lamp, a halogen lamp, a tungsten lamp, a xenon lamp, a light emitting diode, and a fluorescent lamp.

38. The method for testing according to claim 2, wherein the visible light has such light source as a metal halide lamp, a halogen lamp, a tungsten lamp, a xenon lamp, a light emitting diode, and a fluorescent lamp.

39. The method for testing according to claim 3, wherein the visible light has such light source as a metal halide lamp, a halogen lamp, a tungsten lamp, a xenon lamp, a light emitting diode, and a fluorescent lamp.

40. The method for testing according to claim 4, wherein the visible light has such light source as a metal halide lamp, a halogen lamp, a tungsten lamp, a xenon lamp, a light emitting diode, and a fluorescent lamp.

41. The method for testing according to claim 5, wherein the visible light has such light source as a metal halide lamp, a halogen lamp, a tungsten lamp, a xenon lamp, a light emitting diode, and a fluorescent lamp.

42. The method for testing according to claim 26, wherein the visible light has such light source as a metal halide lamp, a halogen lamp, a tungsten lamp, a xenon lamp, a light emitting diode, and a fluorescent lamp.

43. The method for testing according to claim 27, wherein the visible light has such light source as a metal halide lamp, a halogen lamp, a tungsten lamp, a xenon lamp, a light emitting diode, and a fluorescent lamp.

44. The method for testing according to claim 28, wherein the visible light has such light source as a metal halide lamp, a halogen lamp, a tungsten lamp, a xenon lamp, a light emitting diode, and a fluorescent lamp.

45. The method for testing according to claim 1, wherein a illumination intensity of the visible light to be irradiated on a surface of the semiconductor film is 10,000 lux or more.

46. The method for testing according to claim 2, wherein a illumination intensity of the visible light to be irradiated on a surface of the semiconductor film is 10,000 lux or more.

47. The method for testing according to claim 3, wherein a illumination intensity of the visible light to be irradiated on a surface of the semiconductor film is 10,000 lux or more.

48. The method for testing according to claim 4, wherein a illumination intensity of the visible light to be irradiated on a surface of the semiconductor film is 10,000 lux or more.

49. The method for testing according to claim 5, wherein a illumination intensity of the

visible light to be irradiated on a surface of the semiconductor film is 10,000 lux or more.

50. The method for testing according to claim 26, wherein a illumination intensity of the visible light to be irradiated on a surface of the semiconductor film is 10,000 lux or more.

51. The method for testing according to claim 27, wherein a illumination intensity of the visible light to be irradiated on a surface of the semiconductor film is 10,000 lux or more.

52. The method for testing according to claim 28, wherein a illumination intensity of the visible light to be irradiated on a surface of the semiconductor film is 10,000 lux or more.

53. The method for testing according to claim 45, wherein the illumination intensity is from 20,000 to 100,000 lux.

54. The method for testing according to claim 46, wherein the illumination intensity is from 20,000 to 100,000 lux.

55. The method for testing according to claim 47, wherein the illumination intensity is from 20,000 to 100,000 lux.

56. The method for testing according to claim 48, wherein the illumination intensity is from 20,000 to 100,000 lux.

57. The method for testing according to claim 49, wherein the illumination intensity is from 20,000 to 100,000 lux.

58. The method for testing according to claim 50, wherein the illumination intensity is from 20,000 to 100,000 lux.

59. The method for testing according to claim 51, wherein the illumination intensity is

from 20,000 to 100,000 lux.

60. The method for testing according to claim 52, wherein the illumination intensity is from 20,000 to 100,000 lux.

61. A semiconductor device comprising a semiconductor film tested by a method for testing according to claim 1.

62. A semiconductor device comprising a semiconductor film tested by a method for testing according to claim 2.

63. A semiconductor device comprising a semiconductor film tested by a method for testing according to claim 3.

64. A semiconductor device comprising a semiconductor film tested by a method for testing according to 4.

65. A semiconductor device comprising a semiconductor film tested by a method for testing according to 5.

66. A semiconductor device comprising a semiconductor film tested by a method for testing according to 26.

67. A semiconductor device comprising a semiconductor film tested by a method for testing according to 27.

68. A semiconductor device comprising a semiconductor film tested by a method for testing according to 28.

69. A manufacturing method of a semiconductor device, comprising the steps of:

testing each of a plurality of semiconductor films crystallized by an energy beam having a different density by the method for testing according to claim 1; and

crystallizing a semiconductor film by determining an irradiation energy density by a result of the testing.

70. A manufacturing method of a semiconductor device, comprising the steps of:

testing each of a plurality of semiconductor films crystallized by an energy beam having a different density by the method for testing according to claim 2; and

crystallizing a semiconductor film by determining an irradiation energy density by a result of the testing.

71. A manufacturing method of a semiconductor device, comprising the steps of:

testing each of a plurality of semiconductor films crystallized by an energy beam having a different density by the method for testing according to claim 3; and

crystallizing a semiconductor film by determining an irradiation energy density by a result of the testing.

72. A manufacturing method of a semiconductor device, comprising the steps of:

testing each of a plurality of semiconductor films crystallized by an energy beam having a different density by the method for testing according to claim 4; and

crystallizing a semiconductor film by determining an irradiation energy density by a result of the testing.

73. A manufacturing method of a semiconductor device, comprising the steps of:

testing each of a plurality of semiconductor films crystallized by an energy beam having a different density by the method for testing according to claim 5; and

crystallizing a semiconductor film by determining an irradiation energy density by a result of the testing.

74. A manufacturing method of a semiconductor device, comprising the steps of:

testing each of a plurality of semiconductor films crystallized by an energy beam having a different density by the method for testing according to claim 26; and

crystallizing a semiconductor film by determining an irradiation energy density by a result of the testing.

75. A manufacturing method of a semiconductor device, comprising the steps of:

testing each of a plurality of semiconductor films crystallized by an energy beam having a different density by the method for testing according to claim 27; and

crystallizing a semiconductor film by determining an irradiation energy density by a result of the testing.

76. A manufacturing method of a semiconductor device, comprising the steps of:

testing each of a plurality of semiconductor films crystallized by an energy beam having a different density by the method for testing according to claim 28; and

crystallizing a semiconductor film by determining an irradiation energy density by a result of the testing.

77. The manufacturing method according to claim 69, wherein a means for photographing the scattered light is provided in a crystallization chamber.

78. The manufacturing method according to claim 70, wherein a means for photographing the scattered light is provided in a crystallization chamber.

79. The manufacturing method according to claim 71, wherein a means for photographing the scattered light is provided in a crystallization chamber.

80. The manufacturing method according to claim 72, wherein a means for photographing the scattered light is provided in a crystallization chamber.

81. The manufacturing method according to claim 73, wherein a means for

photographing the scattered light is provided in a crystallization chamber.

82. The manufacturing method according to claim 74, wherein a means for photographing the scattered light is provided in a crystallization chamber.

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83. The manufacturing method according to claim 75, wherein a means for photographing the scattered light is provided in a crystallization chamber.